NORTHERN CALIFORNIA EDUCATION AND RESEARCH CENTER FOR OCCUPATIONAL SAFETY AND HEALTH

SUMMARY ANNUAL REPORT
July 1, 2008 – June 30, 2009

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OCTOBER 1, 2009

Northern California Education and Research Center Annual Report
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Center-Wide Highlights *Director John Balmes, MD*

The Northern California Education and Research Center trains students for leadership positions in occupational and environmental health, while engaging in cutting-edge research in areas of interest to workers and employers. Forty-two trainees in medicine, nursing, industrial hygiene, and ergonomics were part of the training program. Of those, 29 were partially supported by NIOSH. An additional 29 students took occupational health and safety courses. Primary and affiliated teaching faculty published 134 manuscripts. Sixteen former or current students were co-authors on these manuscripts. Faculty secured more than $64 million in extramural funding.

The interdisciplinary Research Training Seminar at UCSF, focusing on research design and implementation, was expanded by UC Berkeley epidemiologist, Dr. Michael Bates. UCSF trainees in nursing and medicine, as well as those in the Targeted Research Training program, attended this monthly seminar.

A symposium addressing the health and safety issues of immigrant workers is scheduled for January 2010. The program, "Immigrant Workers II: Voices from the Workplace," will be coordinated by Marc Schenker (UC Davis) and Robin Baker (Labor Occupational Health Program). Workers and their representatives will be key contributors to this conference. Invitations will be extended to groups such as the Asian Immigrant Worker Advocates, Just Transition Alliance, La Raza Centro Legal, and the Asian Law Caucus.

The Center for Occupational and Environmental Health (COEH) granted the Llewellyn Student Awards to graduate students in environmental health sciences (EHS) and nursing for a water sanitation project in Guatemala, and graduate students in EHS and Civil/Environmental Engineering to investigate chronic low level CO exposure and childhood development.

Several members of the Advisory Committee have resigned due to family illness, retirement, and other reasons. We will be reconstituting the committee in 2009; already two new representatives have accepted our invitation (IH, OEHN). We plan to invite additional labor, ergonomics, and business representatives to join the Advisory Committee.

Occupational and Environmental Medicine (OEM) Program

Program Directors: Gina Solomon, MD, MPH, and Sarah Jewell, MD, MPH

Gina Solomon and Sarah Jewell have implemented a part-time training option initiated by the former director, created an MS degree option for OEM fellows, and developed two new elective rotations at National Taiwan University and the Central Labour Institute, Mumbai, while also re-activating a regular rotation at Cal/OSHA. Both lectured to residents in the UCSF Family and Community Medicine program, the UCSF Internal Medicine residents rotating at San Francisco General Hospital and the Ambulatory Care Clinic, and at the Internal Medicine residency program at Kaiser San Francisco. Two UCSF medical students have chosen rotations with the OEM program in large part due to the expansion of the Environmental Health course (M170C), co-taught by Drs. Solomon and Burgel (OEHN).

Graduates conducted research with mentors Drs. Bates and Steinmaus and they presented their findings at UCSF Grand Rounds and the Western Occupational Health Conference. Both have found employment in OEM, and one will be joining the UCSF faculty at the San Francisco Veteran's Administration Medical Center.

The UCSF OEM Multidisciplinary Clinic moved to a larger facility in 2009 to expand its services. Medical Toxicology fellows are now participating in patient evaluations. Faculty research and education included the following: occupation and risk of parkinsonism; health effects of the California 2006 heat wave; work exposures and chronic obstructive pulmonary disease; split keyboard effects on upper body posture; use of a job exposure matrix in assessing occupational exposures; and exposure to traffic and lung function in adults.

Dr. Solomon partnered with the CA Dept. of Public Health to help write the draft 2009 California Climate Adaptation Strategy (http://www.climatechange.ca.gov/adaptation/).

Industrial Hygiene (IH) Program *Program Director: Mark Nicas, PhD, MPH, CIH*

Three core faculty members, Drs. Nicas, S. Katharine Hammond, and Stephen Rappaport conducted IH research. Drs. Nicas and Hammond also serve as IH advisors. Other EHS faculty teach IH-related course work and serve on dissertation committees including Drs. Spear, Balmes, McKone, Holland, M. Smith, A. Smith, and Rempel. In addition, Ms. Plog directs the safety course that focuses on fatality case reports

developed by staff of the NIOSH-supported FACE program.

There were eight students enrolled in the IH Program and seven received NIOSH funding. The program is a balance of practitioner and research training, based on foundational knowledge and technical skills, and practica including internships and participation in clinical settings. Students were mentored on research topics such as respiratory exposures from welding, particle transport/fate modeling, and droplet spray exposure.

Significant revisions to the curriculum have been made based on peer-review and student and advisory committee suggestions. Enhanced laboratory and ventilation training have been integrated into the curriculum, and ergonomics is now a required course for the IH students. "Geographic Information Science for Environmental Health," taught by Dr. Michael Jerrett, is now a required course for all students as well.

Dr. Nicas' research on the transmission of respiratory infections has generated much publicity due to the novel H1N1 influenza pandemic. Dr. Nicas was asked to serve on the August 2009 Institute of Medicine Committee on Personal Protective Equipment for Healthcare Workers in the Workplace Against Novel H1N1 Influenza. An overview of Dr. Nicas' career was also featured in a journal called, "*The Science Teacher*," with a focus on how professionals use science in the workplace and in varied jobs. Dr. Hammond initiated subject recruitment for her multi-year grant from NIEHS evaluating neurological and reproductive effects of hexane on workers. Affiliated faculty members, Drs. Michael Wilson and Megan Schwarzman, were the lead architects in creating the campus-wide Berkeley Center for Green Chemistry.

Graduates of the IH program continue to hold important staff positions in state government health agencies. This year, one graduate (Deborah Gold, MPH) wrote a generic airborne pathogens standard that was adopted by the California Occupational Safety and Health Standards Board; a second (Lennox Welsh, MS) was appointed as the Chief of Cal/OSHA, while a third (Barbara Materna, PhD, CIH) participated in state-wide field investigations of diacetyl exposures. All trained MPH students applied new skills to summer internships in respiratory protection, hazard recognition, and health and safety programs.

Occupational and Environmental Nursing Program *Program Director: Oisaeng Hong, RN, PhD*

During the reporting period, the OEHN program was under the leadership of Dr. Hong. Recruitment of a doctorally-prepared tenure track faculty member is currently underway to fill an open position. Recent PhD graduate, Dr. Drew-Nord, joined the faculty on a temporary basis until a permanent selection has been made. Dr. Hong continues her research on a web-based intervention to reduce hearing loss in firefighters. She also continues to serve on the UCSF Chancellor's Steering Committee on Occupational Health and Safety, as well as on dissertation committees at the Universities of Michigan and Illinois at Chicago.

Dr. Faucett completed her work with NIOSH as Chair of the OEHN Taskforce. Dr. Burgel received two intramural grants to study health and safety needs of taxi drivers. Ms. Segovia-Bain continues her clinical faculty practice with the expanded UCSF Occupational Health Clinic, served on the UCSF Sustainability Committee, and provided volunteer services to day laborers.

Dr. Hong served on dissertation committees for doctoral students in Korea and Thailand. She was appointed as Visiting Professor in the College of Nursing at Osaka University, Japan. She has also provided research mentoring for visiting scholars from Korea, Taiwan, and Thailand. Drs. Faucett and Hong continue to participate in the international collaborative on global changes in nursing employment and OH, funded by the University of OEH, Japan, along with two alumnae, Drs. Cheung and Landry. Further, Dr. Hong was appointed as a Board member for the Korean Association of OHNs and California Regional Director and U.S. Executive Committee, Global Korean Nursing Foundation. These activities increase the visibility of the ERC and COEH.

Eleven MS students and two PhD students were recruited to the program this year, 50% of whom were from minority groups, ten of whom received NIOSH support. Four MS and two PhD students graduated during this time period. Students received financial support from the Gordon and Betty Moore Foundation, Eugene Cota-Robles Fellowship, UCSF Graduate Dean's Fellowship (3), PEO-International Peace Scholarship (2), and AAOHN Research Awards (2).

Ergonomics Graduate Training Program *Program Director: David Rempel, MD, MPH*

Two students graduated in 2008-09 with MS degrees related to ergonomics, and two with PhD degrees graduating from the School of Public Health. Four students will continue their studies in 2009-10, of which three have NIOSH support, and all of whom are from minority groups. One MS student received a Young Investigators Award from the American Society of Gastroenterologists. Two other received awards from the UCLA Pilot Projects Grants. One PhD student received a fellowship from Liberty Mutual and a PhD graduate

received the 2009 International Ergonomics Association KU Smith Student Paper Award, one of the highest honors for an ergonomics student. The PhD graduates investigated barriers to usability of medical equipment by people with disabilities and use of exoskeletons for reducing lumbar loads during lifting tasks.

MS and doctoral research includes studies about: the effects of computer monitor viewing distance on symptoms and visual fatigue, wrist tendonitis in blue collar workers, ergonomics loads of gastroenterologists, and effect of dental tool design on hand symptoms in dental hygienists. Eight undergraduate students, primarily from Bioengineering and all minority students, continue to work in the ergonomics laboratory along with two postdoctoral fellows. Students in this program and associated programs (Simon Fraser University, UCLA) were involved in publishing 19 peer-reviewed papers and presentations at 16 scientific meetings.

Several R2P activities took place: dissemination of a device to assist construction workers with overhead concrete drilling; the development of an office chair design; and computer monitor stands designs. Curricular changes from the last reporting period continue, as does the availability of a large number of internship sites.

Continuing Education (CE) and Hazardous Substances Training (HST) Programs

Program Director: Barbara Plog, MPH, CIH, CSP

The CE Program trained over 2,400 OSH professionals in 90 courses, holding relatively steady during an economic downturn. Increases were seen in the number of "other" professionals who were trained (>200 additional) and in private industry (>175 additional), but IH and safety numbers decreased by 23%. As a result of continued outreach to OHNs, the number trained reached 237. The number of physicians decreased from 435 to 336. Attendees came from private industry (914); federal government (147); state and local government (501); academia (798); and internationally (14). Of those who provided race/ethnicity data, 56% self-described as White; 8%, Asian/PI; 11%, Hispanic/Latino; 2%, African-American; 3%, Other; 0.2%, Native American.

New course titles included the following: "*Ergonomic Assessment of Upper Limb Risk Factors for Return-to-Work Programs*;" "*Environmental H & S Challenges of the Nanotechnology Revolution*;" "*New Developments in Occupational Infectious Disease*;" as well as two new nursing courses, including "*Selected Topics for OEHNs*."

The HST program trained 241 professionals and provided scholarships to most attendees. The audience was as varied and vital as in the past. "*Hazards of Pesticides to Emergency Responders"* was co-sponsored by government and private organizations, including: FEMA; NFPA; CA Governor's Office of Emergency Services, State Fire Marshal, and Fire Chiefs Association. Attendees included state, county and municipal hazardous materials specialists and managers, EH specialists and investigators, fire chiefs, fire service hazmat personnel, safety coordinators, environmental technicians and industrial hygienists. Many county, state and municipal agencies were represented as well as hazardous materials response specialists from government agencies, police departments, Cal/EPA and the CA Department of Toxics Substance Control. For two years, occupational clinicians have been taking the on-line class, "*Recognition, Management and Reporting of Pesticide Illnesses,"* co-sponsored with the CA Department of Pesticide Regulation and Cal/EPA. The CE program is especially excited about the two Training of Trainer pesticide safety educator courses offered in English and Spanish in CA, NV, and Mexico. The CE Program/HST Program conducted impact evaluation surveys for all courses and directed the Center-Wide regional needs assessment in spring 2009.

Outreach Program *Robin Baker, MPH and Diane Bush, MPH*

The Labor Occupational Health Program (LOHP) coordinates 8-week internships for students as part of the national Occupational Health Internship Program (OHIP), two of which were funded by NIOSH funds. Each internship project focuses on an aspect of R2P, and this year have included the following projects: ongoing implementation of a participatory research project about the health and safety needs of Chinese restaurant workers; investigating lean production methods being used during in-flight catering food production; and researching and providing education on the health and safety hazards faced by truck drivers at the Port of Oakland. All of the interns have expressed an interest in either pursuing occupational health as a result of their internships or in integrating occupational health issues into other future careers. In addition, LOHP offers more than 100 workshops and training sessions each year reaching more than 2,000 individuals, including teen worker leadership academies. Also launched this year was the development of a training program to address health and safety in the "green job" sector.